

WHAT IS CLAIMED IS:

1. An electromagnetic electroacoustic transducer,
comprising:

a diaphragm made of a magnetic material;

5 a magnet for generating a magnetostatic field to make
the magnetostatic field act on the diaphragm;

an electromagnetic coil for generating an oscillating
magnetic field corresponding to an electric signal to make the
oscillating magnetic field act on the diaphragm; and

10 a casing for storing the diaphragm, the magnet and the
electromagnetic coil therein;

wherein the case has at least one first sound emitting
hole through which a front space on a front surface of the
diaphragm in the casing communicates with a front outer space
15 in front of the casing and at least one second sound emitting
hole through which a rear space on a rear surface of the diaphragm
in the casing communicates with the front outer space in front
of the casing; and

a resonant frequency $Fv2$ of the rear space is set at a
20 value in the range:

$$F0 < Fv2 \leq Fv1$$

in which $F0$ is a resonant frequency of the diaphragm, and $Fv1$
is a resonant frequency of the front space.

25 2. The electromagnetic electroacoustic transducer

according to claim 1, wherein the resonant frequency Fv2 and the resonant frequency F0 have the relation:

$$Fv2 \geq 1.2 \times F0$$

5 3. The electromagnetic electroacoustic transducer according to claim 1, wherein the resonant frequency Fv2 is set at a value near a frequency equal to an integral multiple of the resonant frequency F0.

10 4. The electromagnetic electroacoustic transducer according to claim 1, wherein:

the resonant frequency Fv1 is set at a value near a frequency three times as high as the resonant frequency F0; and

15 the resonant frequency Fv2 is set at a value near a frequency twice as high as the resonant frequency F0.